RTO West
ANCILLARY SERVICES MODEL

This draft represents the proposed Ancillary Services Model developed by the filing utilities for inclusion in their planned March 1, 2002 filing to FERC. It is a work in progress and is subject to change. The filing utilities are releasing this draft to provide an opportunity for stakeholder review and comment. Interested stakeholders may provide comments and input on this draft at the RRG meetings scheduled for February 11 and 12 or in writing. Comments in writing should be sent via email by February 15 at the latest to Bud Krogh at ekrogh@serv.net and Chris Elliott at chrisrtowest@earthlink.net .

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INTRODUCTION

The RTO West Ancillary Services (A/S) Model was developed based upon achieving the following principles.

The Ancillary Service Model will:

1. Satisfy the ancillary service requirements included in FERC's Order 2000
2. Provide Scheduling Coordinators ("SC" or "SCs") a range of options that both meet their ancillary service obligations and that allow SCs to manage their A/S price risk
3. Provide a mechanism for RTO West to meet the reliability needs of the RTO West Transmission System and Control Area that are associated with the supply and deployment of ancillary service resources
4. Promote, to the extent feasible, a fully competitive market for the procurement of ancillary services
5. Ensure that generation, imports, exports and demand-side resources can fully participate in the self-supply of ancillary services and in RTO West's competitive ancillary services procurement process.
6. Ensure that the A/S Model is compatible with the Congestion Management Model

DESCRIPTION OF THE MODEL

The provision of sufficient ancillary services is essential to the reliable and secure operation of the RTO West Transmission System and Control Area. The ancillary services in the RTO West A/S Model include those listed in FERC Order No. 888 as the minimum required services and several additional services specific to the RTO West A/S Model as described below. RTO West has the responsibility to ensure that arrangements for sufficient ancillary services for the RTO West Transmission System and Control Area are made and that ancillary service resources are deployed in a manner that meets all relevant reliability criteria. To meet its responsibility RTO West will determine the amount and location of ancillary services required both on an aggregate and Scheduling Coordinator (SC) basis. Scheduling Coordinators will have the ultimate commercial responsibility for the ancillary services associated with their use of the RTO West Transmission System. SCs will have the option to fulfill this responsibility by supplying many of their own ancillary services, procuring them from RTO West or a combination of self-supply and procurement. For ancillary services that are self-supplied, the SC will receive credit for supplying the services. RTO West will serve as the provider of last resort for ancillary services and will make the necessary arrangements for ancillary services that are not self-supplied by

scheduling coordinators. In general, the cost of ancillary services provided by RTO West will be allocated to scheduling coordinators who did not self-supply their ancillary services.

RTO West will calculate the required amounts and locations of ancillary services for each scheduling coordinator using technical operating and reliability criteria. The formula used by RTO West to calculate these requirements will be available to SCs so they can calculate their ancillary service requirements prior to developing their daily operating plans and schedules. The ancillary services calculated by RTO West will be the basis for SCs to self supply or pay for services provide by RTO West. A combination of direct control and indirect control will be exercised by the RTO West control center over resources providing Interconnected Operations Services[1] for ancillary services as determined to be appropriate by RTO West. As described below, RTO West will foster the development of competitive markets for certain ancillary services and will ensure that scheduling coordinators have access to a real-time balancing market

SCs will have two options to self-supply, referred to as self-tracking and self-provision as described in more detail below. In both of these self supply options, SCs must satisfy the RTO West's technical requirements of these options to receive credit for self-supplying certain ancillary services. RTO West will allow all scheduling coordinators to meet their commercial responsibility for ancillary services by self-providing certain ancillary services, and/or by self-tracking for certain ancillary services.

The two self-supply options and the procurement option that are available to scheduling coordinators provide a range of options to SCs to manage the potential price risk associated with meeting their ancillary service obligations. SCs who have an interest in hedging against the potential for volatile ancillary service prices in short term markets can do so by using the self-supply (either self tracking and/or self provision) option. These options allow an SC to use its own generation/demand side resources or make forward arrangements with others to use their resources to self-supply to meet the SCs ancillary service obligations and thus avoid the need to procure these services from RTO West. For those SCs who are not interested in making longer term arrangements or using their own generation or contracts to self supply they can meet their ancillary service obligation by procuring them through the RTO West's day ahead procurement process.

The RTO West A/S Model described in this exhibit is expected to be refined as more detailed design work is completed. It represents a conceptual model for the initial approach to fulfilling RTO West's provider of last resort function for ancillary services. It also represents a starting point from which the RTO ancillary services function can evolve over

[1] Interconnected Operations Services (IOS) refers to services provided by SCs to RTO West within a conceptual framework developed by NERC and contained in its Interconnected Operations Services Reference Document.
RTO West will deploy IOSs under normal operating conditions through interactions with the responsible SC's control center personnel and control equipment. In the event of an emergency, RTO West will have the authority to deploy resources through interaction with personnel and control equipment at the resource site.

time to address the changing needs of the RTO West A/S market and the Scheduling Coordinators participating in that market.

RTO WEST ANCILLARY SERVICES

RTO West shall provide to all users of the RTO West Transmission System the ability to provide, self-supply, or purchase the Ancillary Services listed below[2]. The description below includes a description of the service provided by RTO West to SCs and a description of the Interconnected Operation Service SCs provide to RTO West.

Regulation and Frequency Response

As provided by RTO West to SCs, Regulation and Frequency Response Service provides for sufficient generation capacity and the coordinated adjustment by RTO West of such generation capacity on a second-by-second basis in real-time in order to continuously balance generation and demand in the RTO West Control Area, thereby maintaining Area Control Error, system frequency and interchange with non-RTO West Control Areas within acceptable limits.

As provided by SCs to RTO West as an IOS, it is the provision of automatic generation control of a generators output that RTO West can use for balancing generation and demand in the RTO West Control Area.

Load Following Up

As provided by RTO West to SCs, Load Following Up Service provides for sufficient generation, imports and/or demand-side resources and the coordinated adjustment by RTO West of such resources on a minute-by-minute basis in real-time in response to net increases in demand or decreases in generation in the RTO West Control Area.

As provided by SCs to RTO West as an IOS, it is the provision of generation, import, or demand-side resource that RTO West can use on a minute-by-minute basis in real-time in response to net increases in demand or decreases in generation in the RTO West Control Area.

[2] Within the RTO West Model an SC can 1) provide an IOS to the RTO as a result of successfully bidding into the RTO's auction, 2) self-supply by either self-tracking or self providing or a combination of the two or 3) purchase one or more ancillary services from RTO West. Under the "provide" and "self provide" options the SC makes available to the RTO for its deployment a generation, export, import or demand-side resource. Resources made available for the RTO to deploy are referred to as Interconnected Operation Services (IOS). The self-provide and self-track options apply to certain IOSs or ancillary services as described below. In the purchase option RTO West is providing a service to SCs that is based upon the coordinated operation of one or more IOSs.

Load Following Down

As provided by RTO West to SCs, Load Following Down Service provides for sufficient generation, export and/or demand resources and the coordinated adjustment by RTO West of such resources on a minute-to-minute basis in real-time in response to net decreases in demand or increases in generation in the RTO West Control Area.

As provided by SCs to RTO West as an IOS, it is the provision of a generation, export, or demand-side resource that RTO West can use on a minute-by-minute basis in real-time in response to net decreases in demand or increases in generation in the RTO West Control Area.

Spinning Reserve[3]

As provided by RTO West to SCs, Spinning Reserve Service provides for sufficient unloaded generation capacity synchronized to the grid, and the coordinated adjustment by RTO West of such resources in real-time in response to loss-of-resource contingencies in the RTO West Control Area.

As provided by SCs to RTO West as an IOS, it is the provision of unloaded generation or import resource synchronized to the system that RTO West can use in real-time in response to loss-of-resource contingencies in the RTO West Control Area.

Non-Spinning Reserve[4]

As provided by RTO West to SCs, Non-Spinning Reserve Service provides for sufficient generation that may or may not have been synchronized to the RTO West transmission facilities prior to RTO West's dispatch instructions and/or demand resources and the coordinated adjustment by RTO West of such resources in real-time in response to loss-of-resource contingencies in the RTO West Control Area.

As provided by SCs to RTO West as an IOS, it is the provision of an unloaded generation or import resources that may or may not be synchronized prior to dispatch or a demand-side resource that RTO West can use in real-time in response to loss-of-resource contingencies in the RTO West Control Area.

Replacement Reserve

As provided by RTO West to SCs, Replacement Reserve Service provides for sufficient generation, import and/or demand resources and the coordinated adjustment by RTO

[3] The RTO West A/S Model should allow demand-side resources with the ability to respond to under-frequency to provide Spinning Reserve IOS to the extent they meet the RTO West technical requirements for this IOS.

[4] The RTO West Ancillary Service Model should allow the potential for use of an under-frequency load-shedding resource for non-spinning reserves to the extent they meet the RTO West technical requirements for this IOS.

West of such resources that can be made available to RTO West on sixty-minutes notice, to enable the RTO West to maintain adequate reserves in RTO West's Control Area

As provided by SCs to RTO West as an IOS, it is the provision of an unloaded generation or import resource that may or may not be synchronized prior to dispatch or a demand-side resource that RTO West can use within a sixty minute period in order to maintain adequate reserves in the RTO West Control Area.

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Congestion Redispatch
As provided by RTO West to SCs, Congestion Redispatch Service provides for sufficient generation, imports/exports and/or demand resources and the scheduling by RTO West of such resources during RTO West's Day-Ahead Scheduling Process or RTO West's Schedule Adjustment Process to enable RTO West to eliminate transmission congestion on the RTO West transmission System prior to real-time consistent with the congestion management model described elsewhere in this filing.

As provided by SCs to RTO West as an IOS, it is the provision of generation, imports/exports or demand-side resources whose schedules can be readjusted by RTO West as a part of congestion management during the RTO West Day Ahead Scheduling process and the RTO West Schedule Adjustment process in order to eliminate transmission congestion on the RTO West Transmission System prior to real time.

Supplemental Energy
As provided by SCs to RTO West as an IOS, it is the provision of dispatchable energy from generation, imports or demand-side resources that RTO West can use in conjunction with other IOSs to provide the Balancing Energy Service or eliminate congestion on the RTO West Transmission System in real time.

Balancing Energy
As provided by RTO West to SCs, Balancing Energy is the coordinated use of several IOSs in real-time to manage energy balances in the RTO West Control Area and to enable RTO West to comply with NERC and WSCC control area performance standards. The IOSs coordinated to provide this service include Regulation, Load Following Up, Load Following Down, Replacement Reserve and Supplemental Energy resources and, to a limited extent, Spinning Reserve and Non-Spinning Reserve resources (for the period of time during which these two types of resources are dispatched in response to a contingency).

The amount of balancing energy service provided to each SC will be determined over a standardized period, for example a ten-minute period. During each such period, RTO West could provide an SC with a positive, negative or no balance energy service.

Voltage Support[5]

As provided by RTO West to SCs, Voltage Support Service is the coordinated scheduling by RTO West of generation and other resources to maintain transmission voltages within acceptable limits throughout the RTO West Transmission System**.**

As provided by SCs to RTO West as an IOS, it is the provision of a generation or other resource that is capable of delivering or absorbing reactive power that RTO West can use for the purpose of maintaining transmission system voltages within acceptable limits throughout the RTO West Transmission System.

Black Start

As provided by RTO West to SCs, Black Start Service is the procurement by RTO West, and the dispatch by RTO West pursuant to emergency restoration plans, of generation resources that are capable of self-starting without support from the RTO West Transmission System in the event of a widespread blackout, in order to restore the RTO West Transmission System to a secure operating state.

As provided by SCs to RTO West as an IOS, it is the provision of a generation resources that is capable of self-starting without support from the RTO West Transmission System for use by RTO West to restore the RTO West Transmission System to a secure operating state in the event of a widespread blackout.

Scheduling and Dispatch

RTO West's (1) receipt, validation, coordination, adjustment and acceptance of scheduling information from Scheduling Coordinators (SCs), in order to develop a secure RTO West transmission facility and (2) monitoring, control and redispatch of transmission and generation resources to operate the RTO West Transmission System within Applicable Reliability Criteria including the coordination of IOSs used to provide ancillary services.

DEMAND-SIDE PARTICIPATION IN A/S MODEL

The RTO West A/S Model supports the participation of demand-side resources in all aspects of ancillary services including participation in self-tracking, self-provision and participation in RTO West's competitive IOS procurement process. Fully utilizing demand-side resources is critical to the efficient operation of markets in the Western Interconnection. In addition, the inclusion of demand–side resources not only increases the depth of competition for IOSs, but also contributes to mitigating potential market power.

RTO West's technical requirements for each IOS and for self-tracking and self-provision shall be developed to allow, to the extent feasible, full participation of demand-side resources. Once in place, these technical requirements will be uniformly applied to all resources (generation, demand-side and import/export resources) and will include, as

[5] The requirements for generators and other resources to provide for the supply of the voltage support IOS and the form of compensation, if any, have yet to be developed.

appropriate to each IOS, the requirements for RTO West to have control or “dispatch” of these facilities.

SELF PROVISION/SELF TRACKING OF ANCILLARY SERVICE

Scheduling Coordinators will be allowed to satisfy certain of their Ancillary Services obligations by self-providing resources capable of meeting RTO West's Ancillary Services requirements or by self tracking.

A. "Self-Provision" means that Scheduling Coordinators provide the IOS for Regulation, Load Following (Up and Down), Spinning Reserve, Non-Spinning Reserve and/or Replacement Reserves. Self-provision of these IOSs exempts the Scheduling Coordinators from paying RTO West charges for procurement of the quantity and type of services that that were self-provided. Self-provided IOS resources will be deployed for communal use by RTO West, and not for the Scheduling Coordinators' specific contingencies and imbalances. Scheduling Coordinators must demonstrate the capability of their self-provided resources to perform these functions.

   An SC may self-provide Ancillary Services using resources for which the SC is the Scheduling Coordinator, or using resources provided by another SC through an inter-SC trade of Ancillary Services. RTO West must have previously certified such resources as capable of providing the designated Ancillary Service(s).

B. "Self-Tracking" means that Scheduling Coordinators use their own resources or resources under contract to meet their needs for Regulation and Load Following (Up and Down) in order to be exempt from all or a part of RTO West charges for those services. Self-Tracking Scheduling Coordinators must demonstrate their capability to match generation and loads over an RTO West defined time period before receiving certification for self-tracking. An SC that has chosen Self-Tracking can choose to self-provide the other Ancillary Services or acquire them through the RTO West A/S procurement process. SCs who choose to self-track are responsible for congestion charges associated with the use of their resources for self-tracking. To the extent the SC has provided CTRs or FTOs, these charges will be offset by the credit associated with the CTRs or FTOs as described in the Congestion Management Model.

C. In the event that one or more SCs are interested in self-providing their reserve requirements for deployment for only the participating SC’s contingencies (and not for communal deployment) RTO West will work to accommodate such a reserve mechanism. Participating SCs will bear the cost of implementing such an arrangement.

D. RTO West will audit the performance of SCs that self-provide or self-track. In the event that the SC fails to perform to RTO-established standards RTO West may penalize the SC for lack of performance.

E. RTO West will be the sole provider of Scheduling and Dispatch, Congestion Redispatch and Black Start Services to Scheduling Coordinators

Transmission Implications Associated With Ancillary Services

RTO West, as a part of its provider of last resort responsibility, will ensure that arrangements are made by the end of the Day Ahead Scheduling process for sufficient resources (generation, import/export and demand-side) and the necessary transmission to be available to meet the RTO West A/S requirements in accordance with all applicable reliability criteria. RTO West will do so by 1) developing technical requirements for SCs that delineate the scheduling and transmission requirements associated with ancillary services for each of the A/S options (procure, self-track and self-provide), 2) monitoring for the proper implementation of these technical requirements by SCs in the day ahead process, 3) arranging for the remaining transmission necessary to meet the RTO West A/S requirements in the Day Ahead Scheduling and real time processes.

The collective consequences of these actions will be that locational prices will reflect the transmission arrangements made by SCs and the RTO for delivery of ancillary services. The locational prices will be applied on a non-discriminatory basis to develop the congestion management charges for each SC. To the extent that an SC has provided CTRs or FTOs for ancillary services, these charges will be offset by the credit associated with the CTRs or FTOs as described in the Congestion Management Model. The locational prices will be used in the RTO West settlement processes.

Technical Requirements For IOS Provision, Self Tracking and Self Provision

RTO West shall develop the technical requirements associated with the provision of IOSs to RTO West and for self-provision and self-tracking. These requirements, which will include but not be limited to equipment and control requirements and performance requirements, will be developed on a consistent technical and commercial basis that will not be unduly discriminatory.

RTO WEST AS PROVIDER OF LAST RESORT

RTO West shall, as a provider of last resort, make certain that the Ancillary Services it determines are required for the reliable operation of the RTO West Transmission System are provided for. In the event that the A/S self-supplied is not sufficient to meet the aggregate A/S requirements RTO West determines are necessary RTO West will take the necessary steps to arrange for the remaining required ancillary services. SCs that don't

self-supply their ancillary service obligations as determined by RTO West will be obligated to pay for RTO West's cost of arranging for those services The RTO West tariff shall have service schedules detailing the charges for all Ancillary Services that it provides.

Except as noted below, RTO West will acquire the resources needed to provide Ancillary Services through an auction or other competitive procurement mechanism based upon voluntary market-based bids for IOSs supplied by SCs. RTO West's may use mechanisms of a short-term nature (e.g. day-ahead to hour-ahead) as well as mechanisms of a longer term nature up to one year in duration. RTO West shall use these mechanisms to minimize the costs of fulfilling its provider of last resort function. RTO west will ensure its use of the A/S market is fully transparent. The ancillary services procured through this market process will in general be the basis for capacity and energy charges under the Ancillary Services portion of the tariff as more fully described below. RTO West will also facilitate SCs posting their IOS resources over a longer time frame in order to encourage the development of the markets for self-provided Ancillary Services.

Cost Recovery and Charges For Ancillary Services

RTO West will recover the cost of the various ancillary services it provides as follows:

1. For Scheduling and Dispatch, Black Start and Voltage Control Services the cost of providing these services will be borne by all SCs through a yet to be developed allocation mechanism. (This service can not be self supplied)
2. For the Balancing Energy Service, the cost of this service will be borne by the SCs who are determined in the RTO West settlement process to have had an energy imbalance.
3. For the Congestion Redispatch Service, the cost of this service will be borne by those who have an obligation to pay for RTO West redispatch as outlined in the Congestion Management Model described elsewhere in this filing.
4. For the Regulation and Load Following (Up and Down) Services, cost recovery will be handled as follows:
    a. SCs who self-track will receive some credit for these services.
    b. SCs that self provide will receive a credit for the services they self-provide.
    c. SCs that did not self-track or self provide for these services will bear the cost of RTO West providing these services.
5. For the Spinning Reserve and Non-Spinning Reserve Services, SCs that self-provide will receive a credit for the services they self-provide, while SCs that did not self-provide will bear the cost of RTO West providing these services.

Each SC shall pay RTO West for any portion of that SC's Ancillary Service obligations that the SC does not meet through self-provision or self-tracking. RTO West shall bill each SC for the SC's net obligations in two stages**:**

1. In the first stage, the SC shall be charged as part of the daily settlement process based on data included in the SC's schedule.

2. In the second stage, RTO West shall settle with SCs based on actual meter data, as part of the final (e.g. weekly or monthly) settlement process.

INCENTIVES/PENALTIES

The RTO West Ancillary Services model includes several incentive mechanisms to encourage SCs to schedule and operate in a manner that supports reliable system operation and avoids shifting costs to other SCs. Included are incentives to 1) discourage excessive reliance on the RTO West energy imbalance market, 2) encourage accurate and complete scheduling of all load in the day ahead market, 3) ensure that generation and demand-side resources self-provided or sold to RTO West for ancillary services are fully functional when called upon by RTO West, 4) ensure that self tracking and self provision resources meet RTO West's technical requirements for these self supply options.

Energy Imbalance Penalties

SCs shall be assessed energy imbalance penalties for incurring energy imbalances (either positive or negative) that exceed a "reasonable use" threshold. The determination of energy imbalance penalties will be assessed after Scheduling Coordinators have had an opportunity to trade hourly imbalance obligations with other SCs after the fact. The Energy Imbalance penalties and ability to trade imbalances after the fact shall be designed to discourage SCs from over-reliance on RTO West's provision of balancing energy to balance their loads and resources.

Load Scheduling Penalties

SCs shall be assessed load scheduling deviation penalties for significantly under-scheduling or over-scheduling their demand during the day ahead scheduling process. The load scheduling deviation penalty shall be determined on an hourly basis, and shall be designed to encourage SCs to provide RTO West with reasonably accurate forecasts of demand.

Penalties And Charges For Failure To Perform

SCs who sell or self provide generation or demand-side resources to RTO West will be penalized if those resources fail to perform or are not available to perform to meet RTO West's technical specifications for the ancillary service. Such penalties will be in addition to the charge made to the SC for the cost of arranging a replacement for the service not provided.

SCs who choose to self-track will be penalized if they fail to operate their resources in a manner that maintains their energy imbalance within an acceptable tolerance band. Such penalties will be in addition to the charge made to the SC for the cost of providing a replacement for the service not provided.

FOSTERING A COMPETITIVE A/S MARKET

It is considered essential to the efficient operation of markets within the RTO West Control Area for RTO West to facilitate the development and use of competitive mechanisms for the supply of Interconnected Operations Services. RTO West will foster the development of competitive markets and market mechanisms for forward A/S products that would be available to the RTO as well as SCs who want to manage the price risk associated with meeting their A/S obligations. To this end, RTO West will utilize competitive procurement processes, to the extent possible, to implement its provider of last resort procurement requirements. For certain IOSs, for example Black Start and Voltage Control, the competitive process may require longer-term arrangements of up to six months in length for example. For the majority of the IOSs, it is expected that RTO West will procure the IOSs needed to fulfill its provider of last resort responsibility using mechanisms with a range of time frames from the Day Ahead Scheduling/Schedule Adjustment process up to one-year forward.

INITIAL RTO WEST OPERATIONS PERIOD

For the first twelve months following the Transmission Service Commencement Date, RTO West shall have the right to obtain Interconnected Operations Services from each Participating Transmission Owner as are needed to supply the type and amount of Ancillary Services provided by the Participating Transmission Owner over the twelve months prior to the Transmission Service Commencement Date. The obligation to provide these IOSs may be terminated earlier than twelve months for one or more IOS if RTO West determines that there exists a fully competitive market for the IOS.

Term of RTO West Sales of Ancillary Services

RTO West shall provide Ancillary Services only on a prescheduled day ahead or hour ahead basis unless there exits no competitive market for Interconnected Operations Services, in which case RTO West may provide Ancillary Services for periods longer than one day.

MITIGATION OF MARKET POWER FOR ANCILLARY SERVICES

RTO West will serve as the provider of last resort of all required Ancillary Services. RTO West will promote the development of competitive markets for ancillary services whenever feasible, as required by Order 2000. Scheduling Coordinators will be able to purchase necessary Ancillary Services, except for Scheduling and Dispatch Service, from certified suppliers other than RTO West. To further mitigate potential market power, Scheduling Coordinators may either (1) "self provide" such Ancillary Services by deploying and making resource capacity available to RTO West for communal use or (2) "self track" their needs for Ancillary Services by matching their own resources to their own specific needs. Both the self-provision and self-tracking options offset or eliminate RTO West Ancillary Service charges. Furthermore, RTO West will facilitate full participation of demand-side resources in all aspects of the A/S Model as a way of mitigating potential market power.

The Market Monitoring Unit will monitor the performance of the ancillary services market for the purposes of detecting market design deficiencies or market power issues.